

# MONTHLY WEATHER REVIEW.

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The MONTHLY WEATHER REVIEW is based on data from about 3500 land stations and many ocean reports from vessels taking the international simultaneous observation at Greenwich noon.

Special acknowledgment is made of the data furnished by the kindness of cooperative observers, and by Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt I. S. Kimball, General Superintendent of the United States Life-Saving Service; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Director Mete-

orological Office, London; H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; Rev. L. Gangoiti, Director of the Meteorological Observatory of Belen College, Havana, Cuba.

As far as practicable the time of the seventy-fifth meridian is used in the text of the MONTHLY WEATHER REVIEW.

Barometric pressures, both at land stations and on ocean vessels, whether station pressures or sea-level pressures, are reduced, or assumed to be reduced, to standard gravity, as well as corrected for all instrumental peculiarities, so that they express pressure in the standard international system of measures, namely, by the height of an equivalent column of mercury at 32° Fahrenheit, under the standard force, i. e., apparent gravity at sea level and latitude 45°.

## FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

### A EUROPEAN COLD WAVE.

During the third decade of the month a cold wave of exceptional severity visited central and southern Europe. In central Russia there was a heavy loss of life and live stock by cold and heavy snow. Southern Russia and the Black Sea were swept by gales of great violence, attended by snow and intense cold. The harbor at Odessa was frozen over, and railroad lines in that region were buried in snow. The cold wave extended to the Mediterranean, and heavy snow fell in Turkey, Greece, Crete, and Asia Minor. The lagoons were frozen at Venice, while at Florence the cold was unprecedented and the River Arno was frozen. In the Alps the weather was intensely cold, 25° F. below zero being reported. Vienna reported the coldest weather in fifty years. In Germany the barometer is reported to have reached a height unsurpassed in the meteorological records of that country, and the temperature was the lowest recorded in twenty years, a minimum of 2° F. below zero being noted at Berlin. In Paris morning temperatures ranged from 14° to 20°. On the North Sea violent northeast gales were experienced. The cold wave extended over the British Isles with the heaviest snowfall in many years, four to six inches of snow being reported in Scotland and northern England.

The arrangement of barometric pressure that was preliminary and favorable to the setting in of this cold wave was shown on the morning of the 19th when a depression appeared over the Black Sea. At this time the barometer was highest, above 30.60 inches, from northern France over Germany and Denmark. By the 20th pressure had increased generally over central and northern Europe and western Siberia, with highest readings, above 30.80 inches, over northern European Russia. Over southwestern Europe the barometer had fallen rapidly. Pressure continued to increase over European Russia until the 22d, with a maximum reported reading of 31.42 inches at St. Petersburg. On the 23d the area inclosed by the isobar of 31.00 inches extended from central European Russia to the North and Baltic seas and the Gulf of Finland. On the morning of the 24th pressure had decreased rapidly over extreme southwestern Europe, the barometer reading at Lisbon being 29.42 inches. After the 24th barometric pressure over northern and western Europe diminished, the depression in the southwest apparently drifted northward over western Europe with a rapid decrease in intensity, and the cold moderated.

On the North Atlantic Ocean the weather was stormy during the second decade of the month.

Except in the extreme Northwest the first two decades of January were remarkably mild in the United States generally east of the Rocky Mountains. The balance of the month was cold, especially in the central valleys, Lake region, and Atlantic States. In New England the first half of the month was mild and the second half much colder than usual. During a cold wave on the 16-17th, temperatures 12° to 45° below zero were reported in Maine, and on the 24th readings were 25° below zero in the interior of New England. The principal cold wave of the month swept the middle and eastern districts in the third decade of the month, with freezing temperatures in the interior of the South Atlantic and east Gulf States, excepting Florida, on the 23d.

Precipitation was heavy in the central valleys, causing destructive floods in the Ohio and lower Mississippi rivers and tributaries, but was light in the Atlantic coast and Gulf States. Snowfall was unusually heavy in the Northern States from Minnesota to Idaho.

The severest gale of the month in the United States began on the Great Lakes the night of the 19th and continued during the 20th, causing great damage to vessels in harbors of the lower Lakes and lake side property.

A typhoon that resulted in a loss of 100 lives is reported as having swept the islands of Leyte and Samar, Philippine Islands, on the 10th.

### BOSTON FORECAST DISTRICT.

The month as a whole was colder than the average, the mean temperature for New England, 20.5°, being 1.1° F. below the normal. During the first nine days the temperature was generally above normal. From the 10th to the 15th it was near the average. The weather became much colder on the 16th and 17th and from this time till the close of the month the temperatures were generally below normal. For the section as a whole the lowest temperature was on the 24th, when minimum readings of -25° or lower occurred in each State, except Rhode Island. During the cold wave of the 16-17th the temperatures were near or below zero in all sections, and 12° to 45° below zero in Maine. Many cooperative observers having records covering forty or more years state that the minimum temperature of the month is the lowest of record in January. There was an unusual amount of cloudiness, with precipitation on